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10/664,176	09/17/2003	Robert W. Levi	42616-0500	3336

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EXAMINER	
TRAN, DALENA	

ART UNIT	PAPER NUMBER
3661	

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/664,176	LEVI ET AL.	
	Examiner	Art Unit	
	Dalena Tran	3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 19* is/are rejected.

7)☒ Claim(s) *16-18 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Notice to Applicant(s)

1. This office action is responsive to the amendment filed on 9/2/05. As per request, claims 1, 8-9, and 16 have been amended. Claims 18-20 have been added. Thus, claims 1-20 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, and 6, are rejected under 35 U.S.C. 103(a) as being unpatentable over Reilly et al.(6366855) in view of Hsu et al.(6243660).

As per claim 1, Reilly et al. disclose a navigation device comprising: an electronic compass to detect an orientation and provide a corresponding heading signal (see column 2, lines 12-28), one or more motion sensing device to detect motion along different axis and provide corresponding motion signals (see columns 4-5, lines 44-28; columns 5-6, lines 66-27; and column 7, lines 22-37). Reilly et al. do not disclose automatically provide different navigation information depending on the orientation of the navigation device. However, Hsu et al. disclose a processing unit communicatively coupled to the electronic compass and one or more motion sensing device to receive the heading signal and the one or more motion signals, determine a position and orientation, and automatically provide different navigation information depending on the orientation of the navigation device (see the abstract; column 1, lines 28-31; column 2,

lines 42-67; columns 6-7, lines 33-23; and columns 7-8, lines 61-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Reilly et al. by combining automatically provide different navigation information depending on the orientation of the navigation device to provide indication of current position, direction, and heading for the user.

Also, as per claim 6, Hsu et al. disclose a communication port to transmit navigation information (see column 5, lines 4-33).

4. Claim 4, is rejected under 35 U.S.C. 103(a) as being unpatentable over Reilly et al.(6366855), and Hsu et al.(6243660) as applied to claim 1 above, and further in view of Soehren et al. (6,522,266).

As per claim 4, Reilly et al., and Hsu et al. do not disclose automatically switches between different modes of operation. However, Soehren et al. disclose the navigation device automatically switches between different modes of operation depending on the orientation of the navigation device, and provides either heading or position information, depending on the mode of operation (see columns 6-7, lines 8-29). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Reilly et al., and Hsu et al. by combining automatically switches between different modes of operation for determining position, velocity, and heading of the user in different orientation and positions.

5. Claims 2-3, are rejected under 35 U.S.C. 103(a) as being unpatentable over Reilly et al.(6366855), and Hsu et al.(6243660) as applied to claim 1 above, and further in view of Kubo et al. (US 2002/0089425 A1).

As per claim 2, Reilly et al., and Hsu et al. do not disclose provide different navigation information depending on whether the navigation device is affixed to a user or not. However, Kubo et al. disclose the processing unit is further configured to provide different navigation information depending on whether the navigation device is affixed to a user or not (see [0004] to [0007]; [0034] to [0038]; and [0061] to [0066]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Reilly et al., and Hsu et al. by combining provide different navigation information depending on whether the navigation device is affixed to a user or not for accurately determine a user heading and position information.

As per claim 3, Hsu et al. disclose a visible indicator to provide navigation information to a user (see columns 3-4, lines 1-7; and column 5, lines 4-32).

6. Claims 7-8, and 12-13, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (US 2002/0089425 A1) in view of Soehren et al. (6,522,266).

As per claim 7, Kubo et al. disclose determining whether the navigation device is affixed to a user, obtaining, and providing an azimuth heading (see [0061] through [0066]). Kubo et al. do not disclose calculating a dead reckoning position. However, Soehren et al. disclose calculating a dead reckoning position if the navigation device is affixed to the user, and providing azimuth heading and dead reckoning position if the navigation device is affixed to the user (see columns 3-5, lines 64-20; columns 9-10, lines 51-27; and columns 14-15, lines 37-46). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Kubo et al. by combining calculating a dead reckoning position to provide distance traveled signal to the user.

As per claim 8, Kubo et al. disclose determining an orientation of the navigation device relative to a horizontal plane (see [0039] to [0040]; and [0061] through [0066]). Kubo et al. do not disclose bipedal ambulation, and crawling ambulation. However, Soehren et al. disclose calculating the dead reckoning position according to bipedal ambulation when the navigation device is affixed to a user and is in a first orientation, calculating the dead reckoning position according to crawling ambulation when the navigation device is affixed to a user and is in a second orientation (see columns 2-3, lines 66-17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Kubo et al. by combining bipedal ambulation, and crawling ambulation to determine user position and heading in different orientation of the body.

Claims 12-13, are machine readable medium claim corresponding to method claims 7-8 above. Therefore, they are rejected for the same rationales set forth as above.

7. Claims 5, and 19, are rejected under 35 U.S.C. 103(a) as being unpatentable over Reilly et al.(6366855), and Hsu et al.(6243660) as applied to claim 1 above, and further in view of Soehren et al. (6,522,266), and Kubo et al. (US 2002/0089425 A1).

As per claim 5, Reilly et al., and Hsu et al. do not disclose bipedal ambulation, and crawling ambulation. However, Soehren et al. disclose if the navigation device is affixed to a user and the device is in a primary orientation, navigation calculations are made according to bipedal ambulation to provide a position, if the navigation device is affixed to a user and the device is in a secondary orientation, navigation calculations are made according to crawling ambulation to provide a position (see columns 2-3, lines 66-17; columns 3-5, lines 64-20; and column 6, lines 8-53). Kubo et al. disclose if the navigation device is hand held, only azimuth

data is provided to the user (see [0061] through [0066]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Reilly et al., and Hsu et al. by combining bipedal ambulation, and crawling ambulation to determine user position and heading in different orientation of the body.

As per claim 19, Hsu et al. disclose the electronic compass, the one or more motion sensing device, and the processing unit are physically incorporated and housed in the navigation device (see column 2, lines 42-67; and columns 4-5, lines 30-3).

8. Claims 9-10, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al.(6243660) in view of Soehren et al. (6,522,266).

As per claim 9, Hsu et al. disclose a method comprising: determining the orientation of a navigation device (see columns 7-8, lines 61-48). Hsu et al. do not disclose first and second orientation. However, Soehren et al. disclose automatically selecting a first motion measurement algorithm if the navigation device is in a first orientation, and automatically selecting a second motion measurement algorithm if the navigation device is in a second orientation (see column 6, lines 8-53; and columns 8-9, lines 32-35), and providing a position according to the motion measurement algorithm selected (see columns 6-7, lines 54-29; and columns 7-8, lines 50-31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Hsu et al. by combining first and second orientation measurement to exactly determine position of the user.

As per claim 10, Hsu et al. disclose the orientation of the navigation device is determined relative to a horizontal plane (see columns 7-8, lines 61-48).

9. Claim 11, is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. (6243660), and Soehren et al. (6,522,266) as applied to claim 9 above, and further in view of Kubo et al. (US 2002/0089425 A1).

As per claim 11, Soehren et al. disclose automatically selecting the first motion measurement algorithm if the navigation device is in the first orientation and affixed to the user, and automatically selecting the second motion measurement algorithm if the navigation device is in the second orientation and affixed to the user (see columns 14-15, lines 37-46). Soehren et al. do not explicitly disclose determining if the device is affixed to the user or not, and suspending all motion measurement calculation if the navigation device is not affixed to the user. However, Kubo et al. disclose determining if the device is affixed to the user or not (see [0061] through [0066]. Soehren et al. do not explicitly disclose determining whether a navigation device is affixed to a user. However, Soehren et al. capable of distinguishing if the device is affixed to user because Soehren et al. disclose the device is carried or worn by the user, and classifying human motion such as walking, crawling, running (see column 14, lines 23-57). To sense on these motion signals, the system must be able to determine the device is affixed to the user. If the device is not affixed to the user, there is no motion to be sensed, and cannot measure any heading or position, therefore, all motion measurement calculation will be suspended. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Soehren et al. by combining determining whether the navigation device is affixed to a user to determine appropriate user position and heading information.

10. Claims 14-15, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. (6243660), and Soehren et al. (6,522,266) as applied to claim 9 above, and further in view of Reilly et al. (6366855).

As per claim 14, Hsu et al., and Soehren et al. do not explicitly disclose detecting if a step has been taken. However, Reilly et al. disclose detecting if a step has been taken (see column 5, lines 29-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Hsu et al., and Soehren et al. by combining detecting if a step has been taken to detect the motion and orientation heading of the user.

As per claim 15, Reilly et al. disclose providing heading information (see columns 6-7, lines 28-20).

11. Claims 16-18, and 20, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Remarks

12. Applicant's argument filed on 9/2/05 has been fully considered. Upon updated search, the new ground of rejection has been set forth as above.

There are no new references in this rejection. All the references in the last office action still using in this rejection.

Applicant's argue on page 6 about Hsu et al. fails to teach "automatically providing different navigation information depending on the orientation of the navigation device". However, Hsu et al. disclose one or more motion sensors couple to compass sensing different navigation information (steps and stride) such as a walking distance (column 2, lines 53), and

traveling up or down an incline or decline of a slope, hill (columns 6-7, lines 34-3; and column 8, lines 2-9). It would have been obvious to one of ordinary skill in the art that, the sensing "walking distance" implies a horizontal direction, and traveling up or down an incline represents a vertical direction of movement. Hsu et al. system provide different navigation information such as current position, and directional heading for a user (see column 1, lines 28-31), distance, and heading (see column 3, line 60; column 8, line 6, and lines 24-25). Also, the compass reading in different axes (X, Y, and Z). Therefore, Hsu et al. teach "automatically providing different navigation information depending on the orientation of the navigation device".

Applicant's argue on page 8 about Soehren et al. that the distinction between a navigation device being affixed to the user or not. Claim 7 now is combine with Kubo et al., Kubo et al. teach the distinction between a navigation device being affixed to the user or not. Also, eventhough Soehren et al. do not explicitly disclose determining whether a navigation device is affixed to a user. However, Soehren et al. capable of distinguishing if the device is affixed to user because Soehren et al. disclose the device is carried or worn by the user, and classifying human motion such as walking, crawling, running (see column 14, lines 23-57). To sense on these motion signals, the system must be able to determine the device is affixed to the user. If the device is not affixed to the user, there is no motion to be sensed.

Applicant's argue on page 10 about Kubo et al. do not use the device orientation for providing different navigation information. However, Kubo et al. disclose a pedometer as a body motion detectors for providing differ navigation information of body motion (X, Y, and Z directions) (see [0034 through [0038]), capable of detecting its orientation, and whether the device is attached to or carried by a user, determining whether the user is walking horizontally,

walking up or down on stairs, etc. (see [0061]). It is possible to detect body motions along specified directions (see [0065] to [0066]), therefore to determine the orientation of the body (see [0063], [0069], and [0070]).

Applicant's argue on page 11 about Reilly et al. system requires external sensors to determine the type of ambulation of the user. The external sensors system is another embodiment of Reilly et al. system. The first embodiment of Reilly et al. is independent of external aiding sources, only relies on the gyros and accelerometers sensors (see column 7, lines 22-25). The sensors using in the first embodiment is not distinct from the applicant's invention.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalena Tran whose telephone number is 571-272-6968. The examiner can normally be reached on M-F 6:30 AM-4:00 PM), off every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on 571-272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner
Dalena Tran
Dalena Tran
November 23, 2005